

Monitoring Study Group Meeting Minutes

September 7, 2006

CDF Mendocino Unit Headquarters, Howard Forest Training Center, Willits

The following people attended the MSG meeting: George Gentry (BOF—acting chair), John Munn (CDF), Dave Longstreth (CGS), Tom Spittler (CGS), Tharon O'Dell (GDRCo), Matthew House (GDRCo), Debbie Duckworth (NRM), Julie Bawcom (CGS), Erik Wahl (CDF-JDSF), Cort Pryor (GMA), Allyson Shaidnagle (CTM), Kevin Faucher (CTM), Stephen Levesque (CTM), Dr. Marty Berbach (DFG), Dr. Richard Harris (UCB), Richard Gienger (HWC/SSRC), Jeanette Pedersen (CDF), Craig Pedersen (CDF), Anne Short (UCB), and Pete Cafferata (CDF). Participating by phone were: Palma Risler (US EPA), Angela Wilson (CVRWQCB), and Julia Dyer (CCRWQCB). **[Note: action items are shown in bold print].**

We began the meeting with general monitoring-related announcements:

- Pete Cafferata announced that the four Review Team agencies will be presenting a series of interagency training workshops this fall. The purpose is to facilitate better working relationships among the agencies and to develop common understandings related to specific issues. The initial training topic is watercourse crossings. The workshop schedule is: November 2/3—Eureka; November 15/16—Redding, and November 29/30—Santa Cruz. The main audience is Review Team agency field staff involved in plan review.
- CLFA's Fall Workshop is titled Legacy Roads and will be held on October 27th at the Redding Holiday Inn. For more information, see: <http://www.clfa.org/legacyroads.pdf>.
- The Watershed Management Council 2006 Biennial Conference titled "Community Action and Innovation for Watershed Sustainability" will be held in Walla Walla, Washington on October 16-20, 2006 (see the WMC website for information: <http://www.watershed.org>).
- The final MSG Modified Completion Report (MCR) monitoring report is posted on the MSG website at: <http://www.bof.fire.ca.gov/pdfs/MCRFinalReport2006077a.pdf>. Clay Brandow, CDF, presented the final document to the BOF at the August meeting in Santa Cruz. Phase II of the MCR program will begin this fall, evaluating a random sample of 8% of completed THPs.
- A study to compare turbidity data collected with different turbidimeters by the USFS-PSW (Jack Lewis), RNSP (Randy Klein), and Rivermetrics, Inc., (Rand Eads) is beginning in Arcata. Dr. Cajun James, SPI, has loaned the group YSI Environmental Sondes. FTS DTS-12 and D&A Instruments OBS-3 units are also being tested. Work will be completed by the end of October and a final report will be written.
- Tom Spittler announced that the BOF's Road Rules Committee has completed the first phase of the project, which entailed compiling all the existing California Forest Practice Rules dealing with different aspects of roads, and has begun the second phase, re-organizing the road rules into a new Article 12 and making them more performance-based. This process has been complicated by the desire to integrate the DFG "2112" coho rule package prescriptive road standards into the revised road rules package.
- Richard Gienger reported that the 9th Annual Coho Confab, which took place on August 25-27, 2006 in the Tomales Bay area, provided a wealth of valuable information and several good field trips. Richard stated that the cost of crossing upgrade work in Marin County is approximately 4 to 5 times higher in Marin County when compared to Humboldt County.
- Dr. Michael Wopat, CGS, asked Pete Cafferata to announce that the USFS Stream Notes are available at the following website: <http://www.stream.fs.fed.us/news/index.html>. Instream monitoring methods are covered in numerous articles in these notes.

Crossing Upgrade Study Presentation

Richard Harris provided the MSG with a PowerPoint presentation titled “Effects of Stream Crossing Upgrading on Channel Erosion.” The presentation is posted on the MSG website at: http://www.bof.fire.ca.gov/pdfs/Harris_Sept_2006_MSG_crossing_upgrade_DANR.pdf. Richard stated that numerous crossings are being upgraded on public and private lands in coastal counties, and construction-related impacts on water quality have triggered concerns by regulatory agencies and others. While the magnitude and duration of impacts have been evaluated for decommissioned stream crossings, they had not been documented for upgraded crossings prior to this study. Twenty-nine crossing upgrade projects in Humboldt County were evaluated on timberlands owned by Green Diamond Resource Company, PALCO, and the Hoopa Valley Indian Tribe. Data were collected prior to construction, immediately after construction, and after the winter of 2005-2006. Longitudinal profiles, cross-sections, and void measurements documented channel changes. Additionally, pre- and post-construction photographs were taken from established photo points. Response variables were total erosion, change in cross-sectional area, and depth and length of incision or deposition along long profiles.

Available data for Humboldt County in the general vicinity of the crossing sites indicates that the winter of 2005-06 was of moderate severity. Recurrence intervals for precipitation events (1, 3, 5 and 10-day) and peak stream discharges generally ranged from <2 yr to 3 years along the coast, to approximately 5 to 7+ years near Hoopa. Nearly half of the sites experienced no measurable erosion or deposition attributable to the stream crossing replacement. For the sites that did experience erosion, only five had volumes greater than five cubic yards and the maximum sediment production was about 10 cubic yards at 2 sites. Total erosion and sediment delivery attributable to the upgrading averaged 1.75 cubic yards/site. Some of the Hoopa sites experienced large changes, but these changes were not attributable to the upgrading work. Large inputs of sediment from upstream landslides in the Tish Tang watershed, a tributary of the Trinity River, are likely responsible. Maximum depth of channel incision was approximately 4 feet and maximum length of incision was about 40 feet. Only a few cross sections displayed significant changes. Generally, cross sections were not sufficiently close enough to capture all channel changes and void measurements were found to be more useful. Several photographs in the PowerPoint display extensive rock installation for channel armoring on PALCO and Green Diamond timberlands, resulting in little to no channel erosion.

Overall, the erosion control measures implemented at the study sites were effective in preventing construction-related adjustments after one winter. Seventeen percent of the crossings accounted for 76% of measured erosion, which compares well with Madej's (2001) work in Redwood Creek, where 20% of the measured decommissioned crossings accounted for 73% of adjustment. Mean sediment production, however, was at least an order of magnitude lower than has been found at decommissioned crossings in past studies. Less erosion occurred at the upgraded sites because of pipe versus natural stream bottoms, the extensive erosion control measures implemented, and lack of stressing storms exceeding 10-year return intervals. Richard concluded by stating that the upgraded crossing sites on these THPs generally performed well and eliminated potentially large sediment sources, and questioned how these results would compare to treatments on other, non-timber related crossing upgrade sites. **A draft paper documenting results has been written and will be submitted to the Western Journal of Applied Forestry.**

South Fork Wages Creek Cooperative Monitoring Project Update

Kevin Faucher, Campbell Timberland Management (CTM), provided a PowerPoint presentation on the South Fork Wages Creek THP Effectiveness Monitoring Study. This is a cooperative project between CTM and CDF, with significant input from the MSG. Kevin presented background information on the study site in western Mendocino County, past harvesting history in the watershed, and the 4 study hypotheses (which are mainly related to changes in turbidity that may occur with timber operations). The study area was first instrumented in the fall of 2003 and data has been collected during the past 3 winters.

The small, steep headwater basins selected for flow, suspended sediment, and turbidity measurement have proven to be extremely difficult to monitor. During the first winter, turbidity values were far lower than anticipated (maximums up to approximately 20 NTUs). The majority of the total sediment load was found to be bedload material. An additional station was installed in the lower Wages Creek watershed the second winter to provide context for turbidity measurements, and much higher turbidity values were found at this station. No large storms occurred during the second winter. During the third winter, a significant storm event occurred on December 28, 2005, with an estimated recurrence interval of 6-7 years. Turbidity values in the South Fork finally reached high levels (nearly 2000 NTUs) with this storm. Inspection of the South Fork watershed revealed that a debris torrent had occurred, resulting in high levels of channel incision (up to 5 ft) and bank cutting (up to 6-7 ft). Torrenting was largely the result of a legacy crossing failure on a headwater tributary of the South Fork. Control reaches at monitoring stations for rating stream discharge were lost. In several locations, turbidity probes were either buried in sediment or left 2-3 feet above the water surface.

Kevin stated that this project has shown that development of discharge rating curves require large amounts of time and effort when dealing with unstable headwater streams. To replace the lost control reaches, CTM and CDF considered purchasing fiberglass flumes for the monitoring stations, similar to those used in Caspar Creek. This idea was rejected due to: (1) the remoteness of the site, (2) the expense of fiberglass flumes, (3) the steep channel gradients present that are not well suited for flumes, and (4) the large amounts of bedload that could rapidly damage the flumes. In addition to the difficulty in measuring discharge, this study has shown that constantly measuring turbidity is difficult in these headwater channels due to shallow stream depth, high turbulence, and extreme bedload mobility. **Due to these difficulties, a decision has been made to: (1) reduce the number of South Fork stations from five to three, (2) focus efforts on obtaining reliable turbidity records, and (3) discontinue stream discharge measurement. Beginning this winter, turbidity measurement will be emphasized—not estimating sediment loads. Pre-treatment monitoring will continue for an additional year or longer if necessary.** Stephen Levesque, CTM, and Kevin stated that the main study hypotheses can still be answered with turbidity measurement. Dr. Lee Benda, Lee Benda and Associates, has nearly completed a revised sediment budget for the South Fork Wages Creek watershed that will complement the continuing turbidity measurement work.

Jackson Demonstration State Forest Road 630 Decommissioning Study

Following lunch, Julie Bawcom, CGS, presented a PowerPoint progress report on her JDSF Road 630 decommissioning study. Road 630 is located in the Middle Fork Caspar Creek watershed and was built about 40 years ago. Approximately 2.8 miles of road were

abandoned in the fall of 2005 and 13 large crossings were removed. The road bed was ripped and outsloped 15 to 30%. A Komatsu (D-9 size) crawler tractor and a Komatsu 220 LC excavator were used for the work. A time study was completed to document the length of time it took the equipment to complete different aspects of the project. The winter of 2005-2006 produced 65.35 inches of precipitation, the fourth wettest in the 43 year history of the Caspar Creek project. The December 28, 2005 peak discharge in the South Fork had a return interval of approximately 8 years, so a moderate stressing storm event occurred. Detailed longitudinal profile measurements, channel cross-section measurements, and void measurements were made after the work was completed and again following the first winter period for four of the crossings. Preliminary longitudinal profiles have illustrated channel incision up to 2-3 feet but bank failures along the road crossing removals have been rare to date. Two noted failures occurred involving remaining perched sidecast at approaches to crossings 4 and 30. During the 2006 field season, Julie will install photo points and begin to plot the data using the WinRoad software program and Excel tables. The four crossings will be re-surveyed again during the 2007 field season and possibly during the 2008 field season prior to final report preparation.

Interagency Mitigation Monitoring Program Pilot Project Update

Pete Cafferata, CDF, and Dave Longstreth, CGS, provided an update on the Interagency Mitigation Monitoring Program (IMMP) pilot project work. The IMMP is being developed to provide a forum for multi-agency teams to collect and evaluate information regarding forestry-related practices. Multi-agency IMMP teams are composed of representatives from CDF, DFG, CGS, and the RWQCBs. The IMMP pilot teams are collecting data on implementation and effectiveness of practices at watercourse crossings and road segments that drain to crossings designed to reduce impacts to water quality. These locations are sites that pose a high risk to water quality based upon past monitoring results. The pilot project is utilizing two teams, one headquartered in Santa Rosa and the other working out of Redding. CDF Monitoring Foresters Anthony Lukacic and Shane Cunningham are coordinating monitoring activities for the IMMP teams. Dave Longstreth is the only person who is serving on both pilot project teams.

Field work for the IMMP pilot project began on July 10th. Data is being recorded with pocket PCs. Crews are answering 136 USFS BMP monitoring protocol questions, 53 California specific questions, and assigning an overall summary score for approaches and the crossing site. To date, the Coast Team has evaluated 22 crossings on 7 plans and the Inland Team has visited 13 crossings associated with 5 THPs. Pilot project IMMP team members have reported that the work has been a positive experience. Dave Longstreth stated that both teams are observing similar things and that all crossings are inputting some sediment to watercourses. Both teams have been able to reach consensus on the crossings that have been evaluated. The biggest concern is that the USFS BMP protocol being used is not applicable to California's Forest Practice Rules (FPRs). Specifically, when the FPRs are followed or exceeded, typically there is still ≤ 1 cubic yard of sediment

delivered at crossings and the USFS BMP procedure requires the user to identify a problem, when none exists. **An MSG IMMP Subcommittee meeting will be held in November to discuss possible changes in the program.**

Reference Watersheds Database Update

Pete Cafferata, CDF, provided a brief update on the Reference Watersheds Database. As reported at the last two MSG meetings, the draft MSG-developed watershed list for very minimally disturbed (i.e., “reference”) watersheds has been used by Chris Keithley, CDF-FRAP, to develop a GIS geodatabase for delineating the boundaries of the basins. The GIS layer and associated database are intended to support community-based watershed groups and government agencies conducting watershed assessments. The draft product is posted at: <http://frap.cdf.ca.gov/watersheds/referencewatershed.html>. Chris has asked MSG participants to try the site and provide input to him on missing reference watersheds, inaccurate data, or inaccurate watershed boundaries (email comments to: frapwatershedweb@fire.ca.gov). Chris has received two detailed tables from the USFS’s Dr. Joseph Furnish, Regional Aquatic Ecologist, on watersheds they consider to be in reference condition for their bioassessment sites compiled throughout the National Forest/BLM/National Parks system in California. There are 262 watersheds listed in their database with widely ranging drainage areas. A GIS evaluation of watershed condition was conducted using variables that include: road density, near stream road density, number of stream crossings, and type and degree of land use. A quick scan of this list shows that there are approximately 20 small watersheds in northern or central California listed with no watercourse crossings that may be appropriate for the Reference Watersheds Database. **Chris Keithley and Pete Cafferata will work on adding appropriate small watersheds from the USFS assessment to the Reference Watersheds Database.**

Gienger “Monitoring and Tracking by Plan Proponents” Proposed Rule Language

Richard Gienger introduced this agenda item by summarizing his reasons for drafting the “monitoring and tracking by plan proponents” proposal. He stated that at the last MSG meeting, Board Member Ostrowski asked CDF to prepare a draft list of monitoring by the agencies, industry, and others that is currently occurring in California. Pete Cafferata briefly summarized a draft document CDF produced to meet this request that lists existing monitoring work by CGS, CDF, RWQCBs, DFG, the timber industry, USFS, NPS, universities, RCDs, and community watershed groups. **George Gentry stated that he would report to the BOF Forest Practice Committee in September that the MSG is working on this issue.**

Stephen Levesque, CTM, added that: (1) agency required monitoring needs to be coordinated, and (2) feedback on the monitoring results submitted to the agencies needs to be provided to landowners, members of the public, and other reviewing agencies. Tom Spittler, CGS, stated that a BOF MSG subcommittee should be established to determine the types of agency monitoring that are most effective and meaningful based on the past 10-15 years of monitoring experience. George Gentry asked Tom Spittler and Pete Cafferata for a short 2-3 paragraph description of this concept for the September BOF meeting in Redding. Mr. Gentry stated that he wants this concept to be a specific goal for the MSG.

MSG Strategic Plan Discussion

Pete Cafferata briefly summarized a short concept paper he prepared for the August BOF Forest Practice Committee meeting in Santa Cruz on a possible modification of the MSG relationship with the BOF. This paper describes how a science-based technical advisory committee (TAC) could be established to oversee BOF committees such as the MSG, loosely based on the Cooperative Monitoring, Evaluation, and Research (CMER) Committee in the state of Washington. The MSG would report to the TAC, informing the committee of monitoring results from hillslope and instream monitoring efforts underway. The TAC would report directly to the BOF, establishing a “firewall” between policy and science (Figure 1), and would be composed of leading natural resources scientists in California. The BOF would approve nominations for the TAC members, who would be associated with universities, private companies, federal and state agencies, etc. Adequate funding is the main challenge for establishing this group in California. The main options for establishing a TAC in California include:

- Writing a Budget Change Proposal (BCP) to fund and staff the TAC. Detailed justification for new positions and funding would be required, which would take considerable time to develop.
- Re-prioritizing existing funding and staffing to accommodate the development of the TAC.
- Seeking outside funding sources to support the TAC.

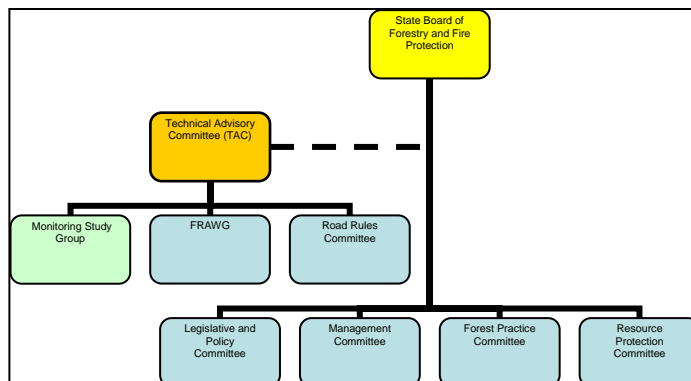


Figure 1. Flowchart illustrating the possible relationship between the BOF and a science-based TAC.

George Gentry led a discussion on this concept and stated that he wants to include the framework as part of the revised draft MSG Strategic Plan (posted at the following webpage: http://www.bof.fire.ca.gov/pdfs/MSGStrategicPlan_4a_.pdf). He stated that there is considerable intellectual appeal for having a “firewall” between science and policy in California. The group agreed that the idea is worth exploring further. **George Gentry and Pete Cafferata will incorporate appropriate language in the revised MSG Strategic Plan. Mr. Gentry asked that the final version of the Strategic Plan be presented to the BOF in November. Pete Cafferata will accept suggestions for Strategic Plan modification from the MSG until mid-October.**

Next MSG Meeting

No final date was set for the next MSG meeting, but it is anticipated that it will occur in either mid to late November or early December and take place in Redding.